EXPRESS MAIL LABEL NO. EL814454697US

CLAIMS:

1. A dispensing system, comprising:

a surface;

a dispenser for dispensing a substance onto the surface;

a mirror coupled with the dispenser;

a light-emitting device coupled with the dispenser, wherein the light-emitting device emits light that is reflected both from the mirror and the surface;

a sensor for receiving the reflected light from both the mirror and the surface;

a computer for calculating the distance between the dispenser and the surface using the reflected light; and

a servo device for adjusting the location of the dispenser in accordance with the distance calculated by the computer in order to maintain a desired distance between the dispenser and the surface.

2. The system of claim 1, wherein the surface comprises a substrate.

3. The system of claim 2, wherein the distance between the dispenser and the surface is about one hundred microns or less.

4. The system of claim 2, wherein the actual distance maintained between the dispenser and the surface is within about 20% of the desired distance.

5. The system of claim 2, wherein the substance dispensed by the dispenser onto the surface comprises any one of:

epoxy;

epoxy acrylate;

an elastomer; and

glue.

6. The system of claim 2, wherein the servo device comprises a robotic arm for adjusting the location of the dispenser in accordance with the distance calculated by the computer in order to maintain the desired distance between the dispenser and the surface.

7. The system of claim 2, wherein the light-emitting device comprises any one of:

an optical fiber coupled with the dispenser; and

a photodiode coupled with the dispenser,

wherein the light-emitting device emits light that is reflected both from the mirror and the surface.

8. The system of claim 2, wherein the sensor for receiving the reflected light from both the mirror and the surface comprises any one of:

an interferometer;

a photo-detector;

a bi-cell; and

a quad-cell.

9. A dispensing system, comprising:

a surface;

a dispenser for dispensing a substance onto the surface;

a first conductive element coupled with the dispenser;

a second conductive element coupled with the surface, wherein a voltage is applied to the first and the second conductive elements;

a sensor coupled with the first and the second conductive elements for measuring the capacitance between the first and the second conductive elements;

a computer for calculating the distance between the dispenser and the surface using the capacitance; and

a servo device for adjusting the location of the dispenser in accordance with the distance calculated by the computer in order to maintain a desired distance between th dispenser and the surface.

10. The system of claim 9, wherein the surface comprises a substrate.

11. The system of claim 10, wherein the distance between the dispenser and the surface is about one hundred microns or less.

12. The system of claim 10, wherein the actual distance maintained between the dispenser and the surface is within about 20% of the desired distance.

13. The system of claim 10, wherein the substance dispensed onto the surface comprises any one of:

epoxy;

epoxy acrylate;

an elastomer; and

glue.

14. The system of claim 10, wherein the servo device comprises a robotic arm for adjusting th location of the dispenser in accordance with the distance calculated by the computer in order to maintain the desired distance between the dispenser and the surface.

15. The system of claim 10, wherein the first conductive element comprises any one of:
a thin, conductive, metallic plate coupled with the dispenser; and
a thin, conductive, metallic strip coupled with the dispenser.

16. The system of claim 10, wherein the second conductive element comprises any one of:
a thin, conductive, metallic plate coupled with the surface; and
a thin, conductive, metallic strip coupled with the surface.

17. The system of claim 10, wherein the sensor is any one of:
a volt meter; and
a bridge circuit.

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18. A dispensing system, comprising:

a surface;

a dispenser for dispensing a substance onto the surface;

a spring coupled with the dispenser, wherein the spring contacts the surface;

a sensor coupled with the spring for measuring the restoring force of the spring;

a computer for calculating the distance between the dispenser and the surface using the restoring force measurement; and

a servo device for adjusting the location of the dispenser in accordance with the distance calculated by the computer in order to maintain a desired distance between the dispenser and the surface.

19. The system of claim 18, wherein the surface comprises a substrate.

20. The system of claim 19, wherein the distance between the dispenser and the surface is about one hundred microns or less.

21. The system of claim 19, wherein the actual distance maintained between the dispenser and the surface is within about 20% of the desired distance.

22. The system of claim 19, wherein the substance dispensed onto the surface comprises any one of:

epoxy;

epoxy acrylate;

an elastomer; and

glue.

23. The system of claim 19, wherein the servo device comprises a robotic arm for adjusting the location of the dispenser in accordance with the distance calculated by the computer in order to maintain the desired distance between the dispenser and the surface.

24. The system of claim 19, wherein the spring comprises a leaf spring and wherein the leaf spring contacts the surface.

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25. A dispensing system, comprising:

a surface;

a dispenser for dispensing a substance onto the surface;

a spring coupled with the dispenser, wherein the spring contacts the surface;

a light-emitting device coupled with the dispenser, wherein the light-emitting device emits light that is reflected from the spring;

a sensor for receiving the reflected light from the spring;

a computer for calculating the distance between the dispenser and the surface using the reflected light; and

a servo device for adjusting the location of the dispenser in accordance with the distance calculated by the computer in order to maintain a desired distance between the dispenser and the surface.

26. The system of claim 25, wherein the surface comprises a substrate.

27. The system of claim 26, wherein the distance between the dispenser and the surface is about one hundred microns or less.

28. The system of claim 26, wherein the actual distance maintained between the dispenser and the surface is within about 20% of the desired distance.

29. The system of claim 26, wherein the substance dispensed by the dispenser onto the surface comprises any one of:

epoxy;

epoxy acrylate;

an elastomer; and

glue.

30. The system of claim 26, wherein the servo device comprises a robotic arm for adjusting the location of the dispenser in accordance with the distance calculated by the computer in order to maintain the desired distance between the dispenser and the surface.

31. The system of claim 26, wherein the light-emitting device comprises any one of:

an optical fiber coupled with the dispenser; and

a photodiode coupled with the dispenser,

wherein the light-emitting device emits light that is reflected from the spring.

32. The system of claim 26, wherein the sensor for receiving the reflected light from the spring comprises any one of:

an interferometer;

a photo-detector;

a bi-cell; and

a quad-cell.

33. The system of claim 26, wherein the spring comprises a leaf spring and wherein the leaf spring contacts the surface.